

## Information system of primary care: integrative review of literature

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## REVIEW

### Information system of primary care: integrative review of literature

Sistema de informação da atenção básica: revisão integrativa de literatura

Sistema de información de atención primaria: revisión integradora de la literatura

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### ABSTRACT

**Objectives:** To identify the scientific production on the Information System of Primary Care - SIAB, and critically analyze the scientific production outlining the themes relevant to their applicability to the service. **Method:** exploratory research descriptive, qualitative approach. The literature review was performed by the Virtual Health Library (VHL) in databases BDNF, SciELO and LILACS. The descriptors used were: Information System, Primary Health and Family Health. We selected seven potential bibliographies. **Results:** After reading the articles revealed three categories: SIAB as a tool in the planning of health actions with primary care, use of SIAB professionals in primary health care, the difficulty of completing the form SIAB. **Conclusion:** it was discovered the difficulty of understanding the relevance of the data, since they are not passed to reliably records information system, in spite of health professionals and community health workers know their importance. **Descriptors:** Information systems, Primary health care, Family health.

### RESUMO

**Objetivos:** Identificar as produções científicas sobre o Sistema de Informação da Atenção Básica - SIAB, e analisar criticamente as produções científicas pertinentes delineando os temas abordados com suas aplicabilidades ao serviço. **Método:** pesquisa exploratória descritiva, de abordagem qualitativa. O levantamento bibliográfico foi realizado através Biblioteca Virtual de Saúde (BVS), nas bases BDNF, SciELO e LILACS. Os descritores utilizados foram: Sistema de Informação, Atenção primária em saúde e Saúde da Família. Foram selecionadas sete bibliografias potenciais. **Resultados:** Diante da leitura dos artigos emergiram três categorias: SIAB como ferramenta no planejamento das ações em saúde na atenção primária, utilização do SIAB pelos profissionais na atenção básica de saúde, a dificuldade do preenchimento das fichas do SIAB. **Conclusão:** detectou-se a dificuldade de compreensão da relevância dos dados, visto que os mesmos não são passados de forma fidedigna às fichas do sistema de informação, apesar dos profissionais de saúde e os agentes comunitários de saúde saberem de sua importância. **Descritores:** Sistemas de informação, Atenção primária a saúde, Saúde da família.

### RESUMEN

**Objetivos:** Identificar la producción científica sobre el Sistema de Información de Atención Primaria - SIAB, y analizar críticamente la producción científica delineando los temas relevantes para su aplicabilidad en el servicio. **Método:** investigación exploratoria enfoque descriptivo y cualitativo. La revisión de la literatura fue realizada por la Biblioteca Virtual en Salud (BVS), en la base de datos BDNF, SciELO y LILACS. Los descriptores utilizados fueron los siguientes: Sistema de Información, Atención Primaria y Salud Familiar. Hemos seleccionado siete bibliografías potenciales. **Resultados:** Después de leer los artículos revelaron tres categorías: SIAB como una herramienta en la planificación de las acciones de salud con el uso de la atención primaria de la SIAB por los profesionales de atención primaria de salud, la dificultad de completar el SIAB granja. **Conclusión:** se descubrió la dificultad de comprender la relevancia de los datos, ya que no se pasan al sistema de información de forma fiable los registros, a pesar de los profesionales de la salud y trabajadores comunitarios de salud saben de su importancia. **Descriptores:** Sistemas de información, Atención primaria de salud, Salud de la familia.

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## INTRODUCTION

In designing the Unified Health System (SUS), one of the basic objectives of the Health Information System (SIS) is to enable the analysis of the health situation at the local level; this analysis takes as a reference, the homogeneous microregions, besides taking into account the living conditions of the population in the health-disease<sup>1</sup>.

SIS is understood as a mechanism for the collection, processing, analysis and transmission of information needed to plan, organize, operate and evaluate health services. It is considered that the transformation of data into information requires, in addition to the analysis, disclosure, and including recommendations for action.

The health information must be understood as a decision support tool for the understanding of the socioeconomic, demographic and epidemiological research, planning, management, organization and evaluation at various levels that make up the Health System<sup>2</sup>.

In Brazil, there are 06 (six) major information systems in health care: the Mortality Information System (SIM), the Information System on Live Births (SINASC), the Information System for Notifiable Diseases (SINAN) System SUS Hospital Information System (SIH-SUS), the Outpatient Information System (SUS SIA-SUS) and the Information System of Primary Care (SIAB)<sup>1</sup>.

The Information System of Primary Care - SIAB was implemented in 1998 to replace the Information System Program Community Health Workers - SIPACS, then the Coordination of Community Health / Department of Health Care, Department of Primary Care Today / Secretariat Health Care, in conjunction with the Department of Information and Computer SUS / DATASUL / SE, for monitoring the actions and results of the activities carried out by the teams of the Family Health Program - PSF<sup>3</sup>.

The SIAB was developed as a management tool of Local Health Systems and incorporated in their design concepts such as planning, problem and health responsibility, completely inserted in the context of the reorganization of the NHS in the country, which meant that assume different characteristics from the other existing systems. These characteristics meant concrete advances in the field of health information. Among them we can highlight: micro-spatial health problems and evaluation of interventions; using more agile and timely information; production indicators that cover the entire lifecycle of the organization of health from the identification of problems; consolidation progressive information, from less aggregated levels for more aggregates.

Through SIAB obtains information about records of families, housing and sanitation, health status, composition and production of health teams.

Main instrument for monitoring the actions of the Family Health Program, has its management in Coordination Monitoring and Evaluation / DAB / SAS (CAA / DAB / SAS), whose mission is to monitor and evaluate primary care, equipping and encouraging the management / strengthen the evaluation culture in the three instances of NHS management<sup>3</sup>.



The availability of the database SIAB internet is part of the strategic actions of the policy set by the Ministry of Health (MOH) and aims to provide information that supports decision making by SUS managers, and instrumentalization by instances of Social Control, making public the data for use by all actors involved in shaping the NHS.

The SIAB is composed by a computer program (software) and some chips (A, B, C, D) and reports of the coverage area, more specifically the instrument Health Situation of Families Area (SSA-2, SSA -4), which consolidates information about the health status of families and Report production and Markers Assessment area (PMA-2, PMA-4 and A1 to A4), which consolidates information on the production of services and the occurrence of diseases and / or situations considered markers<sup>4</sup>. The A record is a record of family record; this record contains basic socio-economic characteristics, health (morbidity) and housing of families and their members. B plugs are used by the ACS for home monitoring of priority groups, such as hypertension, diabetes, pregnant women, leprosy and tuberculosis. A connector C is useful to carry out the monitoring of health conditions and medical follow-up of children under two years, being the very Child Card provided by the Ministry of Health. The D form is used by the entire staff of the Family Health Program (PSF) to record their daily activities (medical and nursing, laboratory exams, referrals), as well as for the reporting of some diseases (eg pneumonia in children under five years)<sup>5</sup>.

Already reports represent a consolidated data present in the records of enrollment and follow-up: (1) SSA2 - Consolidated data of sheets A, B, C and D, (2) SSA4 - Consolidated data contained in the reports SSA2 of a municipality; (3) PMA2 - Consolidated chips of D, (4) PMA4 - Consolidated reports PMA2 the municipality; (5) reports A1 to A4 - Consolidated data present in various forms A. The numbers 1, 2, 3 and 4 refer to the corresponding levels of aggregation: 1 - micro-area, 2 - area 3 - monitoring and 4 - municipality<sup>5</sup>.

As for software SIAB, it uses three forms of input data: one for the family registration, one for health information and other information for the production and markers for evaluation. Unlike other systems of health information, the SIAB is characterized by being a regionalized system therefore provides population indicators (morbidity, mortality, and services) in a certain catchment area. Due to this peculiarity, let's get to know the health status of this population registered as well as the determinants of the disease process. Then represents a potential source of data of great value for the diagnosis of health of certain catchment area, guiding the planning and evaluation of health actions<sup>6</sup>.

Continuous feeding and proper SIAB in relation to the phases of registration and monitoring, as well as epidemiological data which are important parameters for defining actions and policies of prevention, provides sufficient information for planning effective prevention measures / promotion health<sup>3,4,5,6</sup>.

Health professionals have access to the SIAB, also have access to the main indicators of the health status of this population, thus providing opportunities for the organization of health services, and direct their assistance in the search results for the prevention and minimization of complications of injuries. Given the above, it is imperative to have knowledge in different fields of science, and specific tools that facilitate and guide the professional practice that provides autonomy and ability to judge and determine the planning of actions, thereby improving the quality of user assistance health service; thus, as

we outlined an objective to identify the scientific production on the Information System of Primary Care - SIAB, and critically analyze relevant scientific productions outlining the themes with their applicability to service.

METHOD

This is an exploratory and descriptive study with a qualitative approach<sup>7,8</sup>.

The option for the integrative review was made out to be the most extensive methodological approach regarding revisions, allowing the inclusion of experimental and non-experimental for a complete understanding of the phenomenon analyzed. Also combines data from the theoretical and empirical literature, as well as incorporating a wide range of purposes: definition of concepts, theories and evidence review, and analysis of methodological problems of a particular topic<sup>9</sup>.

We carried out the literature on the Virtual Health Library - VHL in databases: BDENF, SciELO and LILACS.

Inclusion criteria for the selection of the articles were articles published in Portuguese, in its entirety, which reflect the thematic and integrative review of articles published and indexed in these databases in the last 11 years.

The search was performed using the following keywords: information systems, primary health care and family health. SciELO database search was done by word, but using the descriptors as a word, and has been done to refine the relevance criteria.

DISCUSSION

At first it was researched each descriptor individually, according to one frame (01).

Associated Descriptors	Database		
	BDENF	SciELO	LILACS
Information systems	46	211	1681
Primary health attention	325	261	4014
Family health	427	220	1618
Total	798	692	7313

Table 1 - Presentation of the bibliography found by a descriptor.

Due to the quantity found and in order to bring the literature to the research objectives, then there was a refining research associating the descriptors in pairs, see table two (2).

Associated Descriptors	Database		
	BDENF	SciELO	LILACS
Information systems + health primary care	01	04	30
Information systems + Family Health	01	01	10
Primary Health Care + Family Health	16	31	194
Total	18	36	244

Table 2-distribution of bibliographies found in databases, with associated descriptors in doubles.

After completing the quest associated with descriptors was done reading the summaries to check the content of the works, so we performed a new selection. To do so, we ran a pre-reading, with the aim of selecting material for realization of your reading, pre-reading is seen as a quick read of the bibliographic material, and this, aim to ascertain to what extent the work consulted interests research<sup>10</sup>.

It is noteworthy that was done reading all abstracts found in databases with the above descriptors information systems, primary health care and family health, a total of 298 publications. This step was developed aiming at the selection that best bibliographic attended the purpose of the study, and therefore, there was also a selective reading.

Through selective reading<sup>11</sup>, it was possible to identify information of interest. This selection should be made in view of the work proposals, namely the problem, hypotheses, objectives.

So, after selecting and deleting productions those were not available in their entirety, were repeated and were not in the English language, and were used articles published in electronic journals. We selected seven (07) scientific productions of the database of BDENF, SciELO and LILACS, which was considered as a potential bibliography of this study, see table three (3) below:

Associated Descriptors	Database		
	BDENF	SciELO	LILACS
Information Systems + Primary Health Care	01	01	02
Information Systems + Family Health	01	-	01
Primary Health Care + Family Health	-	-	01
Total	02	01	04

Table 3 - Potential Bibliography of this study

Following each article was printed and read in its entirety. Thus, there was an interpretative<sup>10</sup> reading of that aims to uncover its way possible, by providing: textual relations, contextual relationships and intertextual relations.

Finally, we carried out thematic analysis content <sup>9</sup>, emerging the following categories: SIAB as a tool in the planning of health actions with primary care utilization SIAB by professionals in primary health care, the difficulty of completing the form SIAB.

SIAB as a tool in health planning in primary care.

In this category are inserted two (02) scientific productions, see table 4 (four).

Author	Year	Title	Magazine
BITTAR; MENEZES; MIALHE; PEREIRA; FORNAZARI <sup>12</sup>	2009	The information system of the basic attention to health management tool.	RFO, v. 14, n. 1, p. 77-81
RADIGONDA; CONCHON; CARVALHO; NUNES <sup>13</sup>	2010	Basic care information system and its use by the family health Team: an integrative review.	Revista Espaço para a Saúde, v. 12, n. 1, p. 38-47

Table 4-distribution of potential Categories of bibliography "SIAB as a tool in health planning in primary care"

The first survey<sup>12</sup>, literature, aimed to analyze the role of SIAB UBS as a tool in the production data used in planning and directing actions in health programs in the Family Health Program (PSF) and Community Agents Program (PACS) with a view to promoting and health education.

The study had as a result the need for readjustment of SIAB service, in order to provide decision-making related to health promotion and education, consistent, as in other care provided in care regionalized.

In subsequent integrative research review <sup>13</sup>, the aim of the study was to analyze the scientific production on the SIAB and its use by the Family Health Teams.

The investigation showed that the SIAB has little use when compared to its potential or is not used by most teams. Still point to difficulties in interpretation, content and quantity; professional training and practice of using data to guide actions.

Identified through the study of the professionals involved with the SIAB recognize its potential as the support for the management of the PSF and for your use of the data is necessary changes occur in the organization of the work process in health.

Recognizing the potential of the system information for the service is proving to be an anxiety for both the gym and for the professionals who discuss these actions in question. But no use if there is an understanding by all actors, the SIAB besides being a tool which takes advantage of quick access to information and interpretation, supports the work process.

Use of the SIAB by professionals in the basic attention to health

In this category are inserted two (02) scientific productions, see picture 5 (five).Author	Year	Title	Magazine
FREITAS; PINTO <sup>14</sup>	2005	Perception of family health team on the use of primary health care information System-SIAB.	Rev. Latino-am Enfermagem, 13(4): 547-54
GERHARDT; PINTO; RIQUINHO; ROESE; SANTOS; LIMA <sup>15</sup>	2011	Use of health basic attention services in municipalities of the southern half of Rio Grande do Sul: analysis based on information systems.	Ciência & Saúde Coletiva, 16(Supl.1):1221-1232



Table 5 - Distribution of potential Categories of bibliography "use by the SIAB by professionals in the basic attention to health".

Was sought in 14 exploratory, descriptive study with a qualitative approach to identify and analyze the use of the Information System of Primary-SIAB as a working instrument of the family health team-ESF, identifying purpose, possible difficulties and skills in the use of tokens SIAB. According to the reports of the subjects of the study, it was possible to highlight the importance of valuing SIAB regarding the organization of the service, because it brings significant data that enable the targeting process FHT work. The actions are defined, targeted and prioritized according to the information contained in the records of the SIAB, mainly in the form, for the data registration of families.

Further emphasized the intensification of ongoing education, reducing the number of chips, the revision in the age ranges listed in the records, to include diseases and other regional activities. The use of SIAB in this context aims to respond to local needs, in addition to direct material resources provided by the Ministry of Health

In the second study 15 described the supply and demand of health services for primary care in thirteen counties in the southern half of the State of Rio Grande do Sul, using secondary data from the website of the Department of the Health System (DATASUL) through absolute frequencies of consultations and procedures in the period 2000-2005. The study revealed that the quality of health care can be improved if the decisions are based on professional information updated and accurate.

One of the barriers to health care and local managers is to manage the growing volume of information in search of the most relevant data that will help in identifying problems and use of these services by users. The SIS can be important allies, since, before an excess of information contained in everyday services, professionals are able to access, accountability and commitment to transform information into action.

The difficulty of fulfilling the chips of the SIAB

In this category are entered six (06) scientific productions, see table 6 (six).

Author	Year	Title	Magazine
FREITAS; PINTO <sup>14</sup>	2005	Perception of family health team on the use of primary health care information system-siab.	Rev Latino-am Enferm., 13(4):547-54
GIROTTI; ANDRADE; CABRERA <sup>16</sup>	2010	Analysis of three sources of information of basic attention to monitoring of high blood pressure.	Epidemiol. Serv. Saúde, Brasília, 19(2):133-141
SCOCHI; MARCOLINO <sup>17</sup>	2010	Health information: the use of the SIAB by professionals of family health teams.	Rev Gaúcha Enferm., 31(2):314-20.
ZILLMER; SCHWARTZ; MUNIZ; LIMA <sup>18</sup>	2010	Assessment of completeness of hiperdia information in a basic unit in the South of Brazil.	Rev Gaúcha Enferm., 31(2):240-6.
RADIGONDA; CONCHON; CARVALHO; NUNES <sup>13</sup>	2010	Basic care information system and its use by the family health Team: an integrative review.	Revista Espaço para a Saúde, Londrina, v. 12, n. 1, p. 38-47
GERHARDT; PINTO; RIQUINHO; ROESE; SANTOS; LIMA <sup>15</sup>	2011	Use of health basic attention services in municipalities of the southern half of Rio Grande do Sul: analysis based on information systems.	Ciência & Saúde Coletiva, 16(Supl.1):1221-1232

Table 6 - Distribution of potential Categories of bibliography "the difficulty of completing the chips of the SIAB".



Related to difficulties in the operation of the system, the authors of the first study<sup>14</sup> point out questions regarding data collection on the chips SIAB. Besides the lack of clarity in the filling and handling of the chips, which results in compromising the information process, once this step is essential to obtain accurate information. The data quality is directly related to the collection phase and the way they were demonstrated.

In the survey 16 were studied sources of information about hypertension a Family Health Unit of Londrina, Paraná. Sources System Registration and Monitoring of Hypertensive Diabetics (HIPERDIA), Information System for Primary Care (SIAB) and chips designation of time, which were analyzed and identified the reasons for not registering in each source of information, as well as to estimate underreporting of cases of hypertension in the study area.

The result showed that for the service organization, the perception of health professionals was positive about the importance of the SIAB, however, are cited limitations, such as low quality and fill power of the chips, the high turnover of community health, and the lack of investment in continuing education.

17 In a subsequent study, to investigate the use of SIAB by professionals Family Health Teams, we applied a questionnaire to 75 of 10 professional teams who were observed for a week from March to June 2008.

One of the difficulties pointed out by respondents of the study was the lack of systematic supervision of completing the form SIAB by ACS, occurring only during the work informally being discussed cases.

Another relevant in this study is the fact that the sheets B, filled by ACS, are not properly exploited by the teams, especially by doctors who know little or also use this system.

It follows that the use of SIAB restricted solely to family registration and reporting. Thus, it is clear that the information generated by the system have not been used for planning and evaluation of actions taken.

The fourth study<sup>18</sup> demonstrated that the use of SIAB differs among professional staff, with research; we found that the physician is the team member who uses less system. Another relevant point is the informal record for recording the data, where each professional in order to overcome their difficulties, they do so in different ways.

The study revealed that the ACS is that most use the information system, however, the lack of discussion and use of information for the rest of the team, makes the information is undervalued. Concluding that the supervision of the forms filled by ACS is unsatisfactory, being held in an informal way.

The fifth research<sup>13</sup> appropriated the Integrative Review, where the findings proved that the difficulty of professionals to use the system occurs due to doubts regarding the interpretation and meaning of the fields to be filled in the existing forms.

Consonant to the preceding paragraph with respect to ACS, we found that in general the training is insufficient to handle the chips and the absence of team discussion hinders your understanding for not checking reliable results of their work.

Some factors have been suggested to highlight the fragility of the SIAB: lack of continuing education and up righting system, this standardization, which does not meet the

specifics of the site. These factors affect the data collection and, in some cases, generate information that does not show the local reality and thus underdoing system.

With the cross-sectional design, the sixth study<sup>15</sup> we found that during the filling in the forms, fields established by the Ministry of Health as well as other clinical data of importance of registered users, were not fulfilled. The omission of data may interfere with the final processing of the registered in the program, a fact that influences negatively on potential epidemiological studies of this population.

Still points possible factors responsible for completing deficit: lack of professional training of health teams for the use of records and monitoring reports system information, the difficulty of using the data generated in your day to day planning of actions health at the local level and the lack of human resources for the development of duties satisfactorily.

It is a fact that there are difficulties in completing the SIAB by all professional staff of FHS. The deficit of professionals, as well as ongoing training not corroborate this. It is important to understand the FHS team in systematizing meetings to unveil the "we" that make it impossible to remove the information that enable SIAB assertive strategies.

## CONCLUSION

Information Systems are useful tools for professionals and health managers at different levels of attention in addressing health problems encountered by the population as a whole, providing a magnified view of injuries, allowing actions to be planned according to characteristics of the group.

Despite the use of SIAB in order to develop strategies for the promotion and disease prevention, most publications describing the difficulty of dealing with such a system. Because information on health, understood as a support tool for the understanding of socio-economic realities and other existing in our country, in order to have an assessment of the constituent levels of SUS.

In most categories of articles analyzed, it was found that related to operation of the system, there are many questions regarding the collection of data on the chips SIAB, and also the lack of clarity in completing these, which results in lack of accuracy of the reporting process.

Recognizes the importance of the SIAB by health professionals, however, some limitations are found in the use of the same, such as low quality and fill power, the high turnover of community health workers. With this, one has to use the SIAB, it is only restricted to the family registration and reporting and are the ACS, the most use such information system, but the lack of discussion and use of information by the other team members, means that there is devaluation of the information, and you can still do notice that fill these chips made by community health workers is done unsatisfactorily, being detected through surveillance carried these, presenting as a reason poor filling of the lack of discussion of teams, which can hinder the understanding, due to lack of verification results faithful to his work.

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